Sediment Cleanup Advisory Committee
December 9, 2011, 9:30 – 3:30
Ecology's Northwest Regional Office in Bellevue, WA
Facilitated by Tamie Kellogg, Kellogg Consulting
Meeting summary by Emily Santee and Kate Snider Floyd|Snider

In Attendance:

Ecology:

Toxics Cleanup Program
- Jim Pendowski
- Dave Bradley
- Martha Hankins
- Chance Asher
- Pete Kmet
- Laura Inouye
- Russ McMillan
- Pete Adolphson

Water Quality Program
- Cheryl Niemi

Floyd|Snider for Ecology
- Kate Snider
- Emily Santee

Advisory Committee:
- Tim Brincefield – U.S. Environmental Protection Agency (USEPA)
- Larry Dunn – Lower Elwha Klallam Tribe
- Will Ernst – The Boeing Company (Boeing)
- Kristy Hendrickson – Landau Associates
- Mary Henley – City of Tacoma
- Don Hurst – Colville Confederated Tribes
- Lon Kissinger – USEPA
- Lionel Klikoff – Department of Natural Resources (DNR)
- Dave Moss – Spokane County
- Tom Newlon – Stoel Rives
- James Rasmussen – Duwamish River Cleanup Coalition (DRCC/TAG)
- Pete Rude – City of Seattle
- Alex Smith – Port of Olympia
- Glen St. Amant – Muckleshoot Tribe
- Jeff Stern – King County
- Wendy Steffensen – North Sound Baykeeper
- Mike Stoner – Port of Bellingham
- Denice Taylor – Suquamish Tribe
- Heather Trim – People for Puget Sound
- Halah Voges – AECOM
- Chris Waldron – Pioneer Technologies Corporation

Alternate, In Attendance
- Tom Wang – Anchor QEA

Attendance by Conference Call
- McClure Tosh – Yakama Nation
- Clay Patmont – Anchor QEA
- Dave Stone - OSU

Not in Attendance
Nina Bell – NW Environmental Advocates
Nancy Winters – HDR
David McBride – Department of Health (DOH)

Audience (per sign-in sheet)**:**
Bill Beckley – Ridolfi Inc.
Lori Blair – Boeing
Gary Braun – Tetra Tech
Tad Deshler – Windward Environmental (Windward)
Sherri Duncan – Yakama Nation / Ridolfi Inc.
Nick Garson – Boeing
Bryan Graham – Schnitzer Steel
Kathy Godtfredsen – Windward
Brian Gouran – Port of Bellingham
Mark Johns – Exponent Inc.
Ken Johnson – Weyerhaeuser
Lincoln Loehr – Stoel Rives
Lawrence McCrone – Exponent
Nicole Ott – Crete Consulting
Paul Perlwitz – Nippow Paper
Bruce W. Rummel – Great Water Associates
Pete Stoltz – CalPortland
Priscilla Tomlinson – Integral Consulting
Marian Winewan – WR Consulting, Inc.
Beth Schmoyer – City of Seattle

Morning Session

- Introductions, Recap of Advisory Group Input from previous meetings, by Dave Bradley
- Presentation by Russ McMillan: Freshwater Cleanup Standards
- Input from Advisory Committee
- Presentation by Chance Asher: Liability Principals and PLP Involvement for Larger Site
- Input from Advisory Committee
- Input from Audience

Introduction and Recap by Dave Bradley

Presentation of SMS Freshwater Sediment Standards by Russ McMillan

Please note the correction on Slide 10: For the upper bound the “lowest of” effects based criteria options should list 10^{-5} cancer risk, not 10^{-6} cancer risk.

Questions and Comments on Chance Asher’s Presentation:

Affiliation	Comment/Question	Ecology Response
Advisory Committee	I like the approach taken with respect to benthic criteria overruling chemistry criteria. I’m okay with making the focus benthic communities and not bioaccumulative chemicals and their impact on fish/human health.	The proposed freshwater standards are for protection of the benthic community. However, a new SMS section -574 addresses ecological risks from bioaccumulatives and new section -571 addresses human health risk from

		bioaccumulatives.
Advisory Committee	I have some concern that we won't be able to process all the information we've been given in order to make informed and meaningful comments given how much information we just received all at once in the power-point presentation. Additionally, samples were not taken nearby many mining sites (e.g. no samples were available/used at the Upper Wenatchee River) so I have some concerns regarding the applicability of samples to the whole area/state.	We limited the samples used to develop criteria to ones that passed the most rigorous QA standards, QA II. Most of the mining sites did not pass QA and did not have the full suite of chemistry. Since development of criteria utilized a multivariate method, we needed to ensure that a full suite of contaminants were analyzed to verify which contaminants were causing toxicity. Paragraph -573(2)(l) addresses the limitations of the criteria – they may not be representative of mining sites due to their unique geophysical nature which affects availability of contaminants.
Advisory Committee	The copper value seems high – this may be a concern for freshwater sites.	The criteria developed was to protect the benthic community. We understand copper is a concern for fish – section -574 of the rule addresses this pathway and receptor.
Advisory Committee	The overall framework looks good. Attention was given to the most important pieces. I remember that reference or "control" sediment was discussed last year as part of the Sediment Work Group meetings, but not resolved; I don't see reference sediment in the current materials. Have you addressed reference sediment somehow?	Finding a reference area is tough for freshwater sites; there are not many areas that would qualify to serve as reference sites. We included performance standards for reference sites if you can find a site to use and it's approved by Ecology as a reference site. We will have controls in place to ensure its applicability. We developed standards for comparison to control based on the input we received from regional and national experts, labs and the Sediment Work Group meetings in 2010.
Narrative comment from Don Hurst, Advisory Committee Member, explaining a handout distributed at the	My handout is about the role and appropriateness of freshwater standards for metals – I'd like to highlight certain parts for the Advisory Committee. The first page of the handout explains recent events in a lawsuit between the State of Washington and the Colville tribes, who partnered to hold a Canadian company, Teck Cominco American (Teck Cominco), liable for contamination that	There were 648 co-located bioassay and chemistry stations used in developing the SQVs, 65 of those were from east of the Cascades and 56 from Lake Roosevelt. While some of those from Lake Roosevelt were high, other locations not dominated by slag exhibited equally high values that were not associated with toxicity. This lends credence to the metals values not being overly influenced by slag which would

meeting	traveled into the United States. The defendant tried to hold the tribes and Washington state liable. I have passed out an email regarding the decision, which states Washington is not liable as an arranger of the disposal of hazardous waste. This is an important precedent. The next item is a comparison of the new freshwater standards to consensus based standards. I'd like to point out the two approaches come out with the roughly comparable values with the exception of copper, lead, and zinc; and to a lesser extent arsenic. The differences between the new copper, lead, and zinc values are 10-30 times the consensus based values. Now that we've recognized the differences, we need to ask the question *"Why?"* The 65 results used to develop the new values include data from Oregon, Idaho, and Washington. 56 of the results come from Lake Roosevelt and are from a 2005 study. The next page is a toxic/non-toxic comparison/evaluation of data. This was done throughout the reservoir. The predictability of the numbers is biased by the Lake Roosevelt data – no one listened to what the Lake Roosevelt data was saying. Slag dominates the Lake Roosevelt system. There are ten million tons of slag particles in the lake. The next page is a photo of a slag particle taken from downstream of Teck Cominco. A map on the next page shows the extent of travel of these slag grains. The next page shows close-ups of the slag grain. We see sand size slag grains and slag flakes in silt and clay size transported the entire length of the reservoir. In Ecology's evaluation of freshwater sediment standards, pore water was not off the table but was put on the back burner. Benthic organisms live in the interstitial area between slag grains – so releases of slag grains affect benthic organisms. The	be expected to have high metals values but low availability (=toxicity).

	downgradient slag particles are different than the slag particles that are seen upgradient, due to the size of the grains that are transported downstream and how animals interact with them. Therefore, the entire data set is unreliable.	
Tamie: Would anyone from the Advisory Committee like to express their comments or questions in reaction to this presentation?		
Advisory Committee, to Ecology	Can you explain why the new standards for these three metals are higher? I don't need you to go through the entire model, but what is the scientific reasoning behind the result? Second, I'm concerned that the copper number is not representative of when copper begins to pose a threat to organisms, since many organisms practice avoidance behavior. Did you look at the impacts with respect to sense of smell and avoidance behaviors? Third, I'm also concerned that bioaccumulative effects to fish were not included.	There is a fundamental difference in purpose between the consensus-based Threshold Effects Concentration (TEC) and the SQVs developed using the FPM. The TECs are established at the lowest concentrations where adverse effects are first seen. For that reason they are good at assessing whether there is ***any*** potential for harm to biota, and will accurately predict a high percentage of actual bioassay hits. What the TEC do not do well is accurately predict both hits and no-hits. So the TECs miss few hits (low false negatives) but this results in calling many sediments hits when they are not (very high false positives). The resulting overall accuracy in predicting quality of sediment is poor. The specific purpose for developing the Floating Percentile Model (FPM) is to establish Sediment Quality Values (SQVs) that accurately predict both when sediment is toxic and when it is not toxic, balancing false negatives and false positives. This is important for use in Ecology's regulatory context and is why we see the difference between the new freshwater standards and the consensus-based values. There can be a two, five, or even 10 fold difference from the TECs which are established at the very left hand end of the distribution of hits across concentration), and that's acceptable. The FPM method is multivariate – it doesn't look exclusively at copper; it

		looks at metals and organics together. Even though the value for copper is high, the SQVs capture toxicity at all sites. Don brought up the idea that Lake Roosevelt data is biased because of the presence of slag, which could impact how values were determined. We looked at copper values from Lake Union and all over the state to see where they were high and if they were associated with toxicity. There were high values from other locations than Lake Roosevelt that were not associated with toxicity. The presence or absence of slag and the resulting physical impacts on biota is not captured by numeric standards, but the Rule allows for bioassays to be used in place of numeric standards. The numeric standards protect benthic macro-invertebrates. The new rule section -574 addresses bioaccumulatives and other pathways and ecological receptors. Human health is taken into account in rule section -571.
Advisory Committee	Is there enough data to calculate values without using data from Lake Roosevelt?	We gathered information and looked at all types of data in many different combinations. We looked at data from the West side of the state separately from data on the East side of the state; when we combined the data, reliability significantly improved for both sets. We aren't sure why this is since the SQVs demonstrate correlation rather than cause. Maybe mining sites on the West side of the state have characteristics that supplement data from sites on the East side of the state. Or perhaps Lake Roosevelt has characteristics that ensures the impact of metals availability is included.
Advisory Committee	It looks like data that was available on the East side of the state for metals only sites was not used, ironically it was	We recognized that metals only sites are not the same as other sites, which is why the rule has a default to

	excluded because it is metals only data from a metals only site, so data for organic constituents was not available.	bioassays for metals only sites (rule seciton-573(2)(l). These sites are different enough from the bulk of the sites that we have data for that we treat them differently from the onset.
Advisory Committee	In most frameworks, if PLPs feel the numeric criteria are unacceptably low, then there is a way to raise the bar with bioassays. This is consistent in the new rule for all constituents except for the three metals Don identified. They are set high numerically and bioassays serve to lower the criteria – that's backwards from the other regulations. Similarly, the biologically active zone (BAZ) is 10 cm, which is too shallow for most sites when reasonable assumptions about the types of benthic organisms (e.g. geoducks) present are made. The BAZ should be set at a deeper level, of 30-40 cm. If the PLP thinks this is too deep, than the PLP should be the one to prove that a shallower BAZ is acceptable at his or her site.	We set the site specific BAZ based on site data and site visits; 10 cm is the starting point. It is fairly simple to modify the BAZ based on what biota should be present or is seen on site. The definition of BAZ in rule section -200 allows for modifying the BAZ. We'll take a look and see if it can be written better to provide that flexibility.
Advisory Committee	The approaches/methodology presented on Sediment Quality Value (SQV) and PEC empirical approaches are similar for all but three or four metals, which are different because variability in the freshwater environment flips the paradigm. I would suggest that we incorporate consensus based values for copper, lead, and zinc.	
Advisory Committee	Mining sites may be numerically fewer in number but only because a limited number of sites have been identified; if you found all the mining sites in the state or quantified sites based on the volume of affected sediments, then mining sites would far overrule the number of sites in the state. Lake Roosevelt is the only slag dominated site on the East Side.	The issue now is the lack of appropriately QA'd data that contains a suite of chemistry analyses rather than just limited to metals. Mining sites are unique, but can have other contaminants causing toxicity not just limited to metals.
Advisory	Freshwater Water Quality Standards for some metals are modified based on	We didn't have enough data to modify data with respect to water hardness –

Committee	water hardness – why aren't the proposed freshwater sediments standards modified?	sediment data results aren't required to include hardness so it generally isn't measured or reported. If we tried to incorporate hardness into the model, we wouldn't have a robust enough data set to use. The SMS relies on the biological override in cases where the chemical criteria are suspected to not be representative. Freshwater environments are very diverse, so developing a set of chemical criteria that applies to all sites would be impossible. Hence, the reliance on bioassays – they will show if the criteria are protective or if there are other chemicals of physical impacts causing toxicity that the chemical criteria do not cover.
Advisory Committee	It's important to have freshwater sediment standards for benthic invertebrates. Marine criteria for benthic effects are orders of magnitude higher than criteria based on human health risk, but are still important to have – so I don't think the freshwater approach is backwards.	
Advisory Committee	I think the comment about the BAZ is right on. I also want to voice my concern that chemical criteria and biological criteria – I think the most stringent should apply. Lab invertebrates aren't reflective of actual invertebrates on site.	The species we chose for the biological criteria are the animals found in NW freshwater environments. The chemical criteria were developed using these animals, and they are representative of the animals living in these environments.
Advisory Committee	I like the biological override, if species used for the bioassays are representative of local species. For more unique sites, the Rule should enable Ecology to evaluate toxicity on a site specific basis.	We would like to point out that chemical criteria for marine invertebrates (the Apparent Effects Threshold [AET] values) and the freshwater criteria are based on bioassays. If you disagree with the numeric criteria, then fundamentally you would disagree with the bioassays they were based on. The rule allows for use of different bioassays if Ecology determines the species are not representative.
Advisory	The numeric freshwater sediment standards are significantly higher than	We recognize that this is something we need to think about. In the

Committee	standards for estuarine embayments. If Ecology regulates upriver freshwater sites using the new freshwater sediment standards, how would they ensure that upriver sources of sediments to the downriver estuarine environment are protective? What is the linkage between freshwater and marine sites?	administrative policy section of the rule, it states that wherever different media (e.g., sediments, groundwater, surface water) come together, the more stringent of the two requirements applies. The Clean Water Act implies that the more stringent downstream standards can be met by the time you reach the downstream location, which enables higher concentrations to be present upstream. The biological override could also be applied to these freshwater sites; if downstream concentrations are a concern, then you could look at the downstream concentrations themselves. The situation changes throughout the river bed—ionization levels and many other parameters change throughout rivers, but not all of these changes may be relevant to the health of benthic organisms. Bioassays could be used to determine whether or not changing conditions are relevant to the health of benthic communities. Collection of additional data may also lead to the adjustment of numeric criteria over time. This is part of the issue with the data we are currently using. The new values are a starting point, not the ending point.
Advisory Committee	What if the estuarine area is 20 miles downstream? Would a PLP have to address the whole river to determine cleanup parameters?	This should be addressed on a case by case basis – For example, if downstream concentrations of PCBs are an issue, you must look both upstream and downstream.
Tamie: Is there adequate flexibility in the rule for addressing unique and underrepresented sites?		
Advisory Committee	I still have concerns regarding spread in the numbers. I think it's more of an issue for organics than metals. The spread between the upper level (i.e. high probability of effects) and the lower level (i.e. some evidence of effects) is huge for some chemicals (e.g. dibutyl tin). If I'm supposed to choose an	We expect PLPs to look at net environmental benefit, technical feasibility, cost, and other limiting factors when performing this analysis. If it's possible to go down to the lower bound, then we expect you would do it. If it is cost prohibitive to cleanup to the lower bound value, then Ecology

	intermediate cleanup level in the middle of the upper and lower bounds, I almost have to do a bioassay simply because the spread is so large.	would choose a value in the middle of the range that is achievable and protective. Dave Mount from the USEPA, one of the technical reviewers of the document, thought the copper value was acceptable for the protection of benthic invertebrates. The lower level is the lowest of the human health risk based level, benthic community toxicity, ecological risk narrative, and other regulations, so human health is taken into account in the establishment of cleanup standards.
Advisory Committee	I'd like to remind the group that the toxicity to benthic invertebrates is based on all chemicals present at a site.	This is one of the strengths of the freshwater SQV criteria – metals and organics data must be used together – those mixtures were found in the majority of data sets we collected. This has the effect of reducing the impact of a large toxicity range observed for an individual chemical. This is similar to the AET approach, where toxicity was calculated by observing the impact of aggregate chemical concentrations rather than the impact of individual chemical concentrations.
Advisory Committee	If you are allowing for the development of site specific chemical criteria by the use of bioassays, can you explain how bioassay results will be used or incorporated when doing regional background determinations? Are there thresholds for the use of data?	We would need at least 30 samples, preferably more for developing site specific criteria. We'd like to underscore that the focus puts increased reliance on bioassays.
Advisory Committee	I think that the complexity of the issues means it is important to maintain flexibility whether on the high end or the low end of the range – on both freshwater and marine sites, since there is no "one size fits all" approach. Your approach is based on science; it seems as good as any other current science-based approach. Instead of using this time to make individual comments for every chemical up and down the list, we should submit those comments in writing and limit this discussion to the	We recognize that laboratory tests are different than environmental results; but laboratory tests are the best tool we currently have available. We built flexibility into the rule so that as new bioassays are developed they can be used.

	framework.	
Advisory Committee	The emphasis this morning has been on metals; how would the concept of site units for PCBs, phthalates, etc. when those are the sources?	Our standards for Aroclors for freshwater are higher than criteria available in other regulations because they are based on benthic criteria. Human health criteria are taken into account when determining the upper and lower tier cleanup levels – in rule section -571. Site specific issues can be addressed as they arise.
Advisory Committee	I'm participating as a representative protecting the interests of the people of the Yakima nation. Ecology says there is an option for bioassays to replace numerical values at sites, but the problem we more frequently encounter is getting a site listed in the first place. I expect this will become even harder if the numerical criteria are high to begin with. For example, in the Wenatchee River, fish tissues have some of the highest metals concentrations in the state but sediment results for many chemicals are or are practically non-detect. We need more data to figure out why.	Fish tissue was intentionally not included in the development of freshwater SMS criteria. These criteria are for protection of the benthic community, as are the marine criteria. Sections -571 and -574 address bioaccumulative and other toxic impacts to human health and upper ecological trophic levels.
Advisory Committee	If risks from bioaccumulative chemicals are addressed through human health risk assessments/criteria, and benthic invertebrate risks are addressed by promulgated criteria, how are chemicals that only pose a threat to fish being regulated?	The ecological narrative in section -574 is meant to address risks to fish. A value protective of fish is chosen as the effects based standard if the benthic criteria is higher than the fish standard.
Advisory Committee	My question is about the water column. If there's a cleanup being done and you have determined contaminants of concern for both water under the Water Quality Program and also for sediment under Washington Sediment Management Standards (SMS), is there interagency review of the two COC lists? How do you know you're not (re)contaminating the water column with the concentrations of chemicals you leave behind because they aren't COCs in sediment?	There is not a lot of intragency program review of cleanup decisions. However, the SMS requires the cleanup to be protective of all exposure pathways and account for other regulations.

	Reaction to Ecology response: That's the problem I see.	
Advisory Committee	What about pore water?	Sediment bioassays will incorporate the effect of contaminated pore water – if an organisms is affected by pore water, it will be affected during the bioassay because of the relationship between sediment and embedded pore water. If the receptor affected by porewater is other than benthic invertebrates, it would be addressed by the narrative ecological standards in Section 574.
Questions and Comments after Chance Asher's presentation Liability Principals and PLP Involvement for Larger Sites		
Advisory Committee	Regarding the options presented on Slides 8-9, should we consider these options a suite of available options or are you deciding between these options?	This is a suite of available options.
Advisory Committee	On Slide 11, you have a bullet for "avoiding expediting settlements" – what does that mean?	Response on behalf of Ecology: The state can't choose one party to settle with first unless their contribution is "de minimus" – so, for example, the state can't choose to settle with a party that is liable for 40% of contamination at a site – we would need to include all PLPs in this process
Advisory Committee	If you have a site unit cleaned up, which is part of a larger site, is that considered an interim cleanup or are interim measures (IMs) a thing of the past?	The term "interim measure" is included in MTCA but not in SMS; under the new SMS rule you can have a full settlement for a unit but still have liability for the rest of the site.
Advisory Committee	It sounds like you would need to specify that a unit cleanup is not an IM.	The cleanup process for a unit would have to go through the entire process, including public comment period, etc; so it's not an interim.
Advisory Committee	In past meetings you have said that there would be an emphasis on source control and baywide monitoring as part of the funding for a region – I don't think funding from the "pot" should go to monitoring.	We included site wide monitoring (bay or watershed wide) in order to track progress of cleanup and source control efforts.
Advisory	Fighting between PLPs can be	We're bounded by the "de minimus"

Committee	expensive; if a party wants to cleanup a site unit above and beyond what they think is their actual liability, would that count towards diminishing their liability for the baywide site cleanup?	phrase – it sounds like you are imagining going above and beyond in one place but not wanting to do more for the baywide cleanup, besides potentially contributing money in the "pot." What information would be used to make the demonstration that you cleaned up more than you were responsible for? '*I removed "x" amount/type of contamination, which makes up for "y" contribution that we made to the contamination in the bay?*' We will think on that suggestion.
Advisory Committee	Would we need to fit "de minimus" to apply for settlement? Ports are frequently not responsible for historical contamination.	That is something we will need to think about, but we would need to involve other PLPs in any settlement process.
Advisory Committee	It seems like this is a cap and trade scenario – this type of analysis is done in air quality all the time. Using air quality principals may work.	
Advisory Committee	Contamination is distributed all over – so how do we define unit and site boundaries? Sediment transport complicates the process of boundary determination.	This topic has been addressed in previous meetings and we've received good feedback. There is language in Section 200 about how to establish unit boundaries – not only can boundaries be concentration-based, boundaries can also be drawn around critical or sensitive habitats etc. You can review Section 200 individually and if you still have concerns please submit written comments.
Advisory Committee	Sediments settle out in various parts of the bay – some may be legacy contamination. How can you determine if Party "C" is "de minimus" if you haven't analyzed the whole bay and then had contamination fingerprinted to determine sources? Quantitative analysis is needed – otherwise how can you say that Party "A" contributed 40%, Party "B" contributed 15%, Party "C" contributed less than 2%, etc?	Yes, comprehensive studies would need to be done to have a good understanding of site dynamics, nature and extent of contamination etc.
Advisory	We've been studying the Duwamish for ten years and we still don't know	

Committee	everything – everyone says they're "de minimus"! I don't think anything other than Option 2 [from Slides 8-9] can be used. I like the idea of "cap and trade" like credits – it seems like a good way to track contributions.	
Advisory Committee	Regarding the concern about funding, that rolls into the bureaucratic mess that is "tracking funds" – how do you ensure that funding goes to the sites it's earmarked for, how do you ensure the legislature doesn't "borrow" from the fund. In the end, municipalities are the ones left footing the bills if money isn't well managed and the fund is drained.	We envision potentially using the Cleanup Settlement Account or something similar for tracking. Unfortunately, most of these types of accounts are not protected from legislation, as we've experienced from the toxics control accounts for cleanup.
Advisory Committee	In this scheme we want cleanups to move along but over time cleanups will always degrade due to nonpoint anthropogenic contributions, etc. There is already a cleanup fund addressing cleanups for bankrupt companies, etc; this is the vehicle that was used for the Asarco cleanup and many others. This account could be used in other ways, but needs to be appropriated to do so. At some point, the cash out piece (for the PLPs) means that the State is coming back in – so the issue becomes ensuring that the share that remains at that point is large enough to sufficiently resource the state to make payments and manage the ongoing quality of the site. Of course, that wouldn't remove municipality liability for source control.	
Advisory Committee	I'm also concerned that we're shifting the burden to taxpayers. The Asarco settlement requires the legislature to appropriate money every two years.	
Advisory Committee	Public process should include determination of best/most applicable options, in general and for the use of any fund. I feel like public comments are never used.	It was our intent that the input received at these meetings would be used to inform our rewrite of the preliminary rule we are currently discussing.
Advisory	As fingerprinting technology and other technologies improve, it's possible that	There will be (and are) reopener clauses in the consent decrees used

Committee	someone who has already settled their liability would be identified as a responsible party of contamination remaining in the bay. What happens then?	for settlements.
Advisory Committee	If a site is being cleaned under the Model Toxics Control Act (MTCA) and SMS, I anticipate cleanup decisions would occur under both MTCA and SMS – who has the ultimate authority? How do you divide a site? If a cleanup is under SMS only, there is no IM language?	Sediment cleanups are completed under the authority MTCA law and the SMS rule, not the MTCA rule; so the upland component would be done under the MTCA rule and the sediment cleanup would be done under SMS. You wouldn't use both rules to do a sediment cleanup. That is the reason we are trying to harmonize the SMS and MTCA rules, so one rule can be used to conduct sediment cleanup. Additionally, if there is contamination in the uplands as well as the sediment, you should have two different risk assessments for the uplands and sediments; they may be covered under one Consent Decree, but you would still look to the two rules for specifics.
Advisory Committee	Addressing legacy contamination is simpler in structure than addressing the next generation of contamination, i.e. phthalates, dioxins, and other baywide contaminants. How do you envision MTCA and Water Quality working together? This approach with SMS creates more exposure to NPDES and Water Quality permits – how can we ensure that SMS and National Pollutant Discharge Elimination System (NPDES) work together? If a party gets to the baywide MTCA sediment criteria but contamination continues, could the party be sued under the Clean Water Act (CWA)? The key question for me is, how do you ensure you are controlling sources from your own site? If there is a way to use MTCA to monitor or permit after a cleanup is complete, you're not at risk of being sued under lawsuits that can be filed under Water Quality regulations; but the same can't be said if you use	We would put conditions in the Consent Decree that then goes to NPDES permit for monitoring if the conditions of the Consent Decree are met. We would also cover the extent of liability under the Consent Decree.

	NPDES permits to monitor the cleanup's effectiveness and recontamination potential.	
Advisory Committee	To clarify: are you talking about existing dischargers with permits?	We struggle between the two programs – if we do the cleanup today, changes in Water Quality permitting may make Total Maximum Daily Load (TMDL) studies a requirement. What it boils down to is how to deal with that uncertainty. We will discuss that in more detail this afternoon.
Advisory Committee	If the "de minimus" liability can't be limited because you could be sued under another program, that's not a viable solution. We need to think of a better way to marry the programs.	
Advisory Committee	If the Water Quality Program is not regulating contaminants of concern (COCs), what is the program to regulate?	Source control is part of the cleanup. First you identify contamination, then modify the NPDES so it is minimized. We can modify the NPDES permit to cover COCs.
Advisory Committee	Instead of presenting "options" as you did in the slide, you should present it at a "menu," where multiple options may be used.	That was the intent.
Advisory Committee	What we think is significant today may change. Short of having cutoffs or definitive ways to define when you're done, it seems like we have to recognize that scientific technologies change.	The level of concern may decrease, but the contribution wouldn't change. The "relative" piece of it is that new information may cause perception of adequacy of source control effectiveness to change.
Advisory Committee	Even contributions may change because risk levels change, which causes the relative importance of each contribution to change.	
Advisory Committee	If the baywide cleanup goes on for decades, does that mean that PLPs are on the hook for decades, even after they have settled liability for their units? How do you deal with a PLP who is not even the main contributor who wants to just clean up and get out?	That might be a scenario where the "cap and trade" concept of cleaning up legacy contamination that is not yours would work. The "deminimus" concept may fit this scenario where a PLP is not a main contributor. They could conduct their cleanup and settle for their minimal contaminant contribution to the rest of

		the baywide site.
Advisory Committee	Units are a good idea, but the baywide program seems like it is best managed under some other program – MTCA seems like the wrong tool to be using to monitor the effectiveness of source control. *Reaction to Ecology response:* Yes – dioxin at 10^{-6} is a laudable goal but it's not realistic; so do it under Water Quality instead of MTCA.	What I'm hearing is that MTCA should "look back in time" and aim to address legacy contamination, but we should use another program to deal with future contamination and addressing legal liability with respect to permit compliance, non point sources, source control, etc.
Advisory Committee	I appreciate the dilemma created by historical and current contamination, but if current sources will create a site, then they need to be managed under MTCA. Our technology just isn't at the point it needs to be to meet our goals. I think the real question is: *How do we incentivize improving technology to the point where it needs to be?*	
Audience	I'm curious whether/why the agency believes we can only settle under the "de minimus" clause?	We're not saying we can *only* settle under "de minimus" stipulations, and we have one mechanism to do that; but if we are doing settlements for a larger contributor, then we need to involve other PLPs.

Afternoon Session

- Presentation by Dave Bradley: Source Control Issues with SMS Rule Revisions
- Presentation by Cheryl Niemi: Water Quality Implementation Tools and Planned Changes to Address Short and Long-term Pollution Control Activities
- Input from Advisory Committee
- Presentation by Dave Bradley: Interaction Between Water Quality and SMS
- Presentation by Dave Bradley: Next Steps
- Input from Advisory Committee
- Input from Audience

No Questions or Comments Received on Dave Bradley's Presentation

Questions and Comments on Cheryl Niemi's Presentation:

Affiliation	Comment/Question	Ecology Response
Advisory Committee	With the forthcoming fish consumption rate (FCR) and human health criteria, standards are decreasing. Does that put us in a variance-driven world for businesses or are there other options?	Water quality standards are strictly risk based; they don't take into account cost or feasibility until the implementation stage. There aren't many regulatory tools that can be used to address long-term source control efforts. Variances are one that can. Variances are almost always going to be driven by TMDLs. After waters are 303(d) listed they need to be ranked for TMDL work. A TMDL will provide allocations and these will be implemented through permits and BMPs. If you're discharging at criteria you don't need a variance. The specific circumstances of a waterbody are important. If there are cleanup sites in the area being investigated, we currently don't include them in load analysis – but cleanup sites may be evaluated as sources in the future because the cleanup levels at these sites may not get us down to CWA levels.
Advisory Committee	This puts us into an untenable regulatory situation – especially for bioaccumulatives. Businesses will automatically be in variances if they have metals or bioaccumulatives on their site or in their discharge.	The reality is that variances will likely be driven by TMDL work. TMDLs are time consuming and will not happen overnight. EPA wants the general population protected at the 10^{-6} risk level, and sensitive populations protected at the 10^{-4} level. Oregon changed their arsenic risk levels to 10^{-4} for the population represented by Oregon's new fish consumption rate because arsenic is prevalent and naturally occurring in Oregon. That was approved by EPA. Many

		dischargers are extremely savvy about EPA rules – in some cases there may be reason to change the risk levels for specific chemicals; but that decision is partially dependent on public process.
Advisory Committee	What role does AKART play?	All permits meet AKART for the chemicals they permit; AKART doesn't trump the risk levels outlined under the CWA. Criteria will drive TMDLs. We are sent priority pollutant monitoring results that are conducted using Section 136 methods. When we get the analyses we look at them to see if they indicate an effluent limit is needed. Many of the Sec. 136 methods aren't sensitive enough to detect many of the human health criteria chemicals at criteria levels, We'll get the priority pollutant monitoring results for PCBs using sensitive monitoring techniques for ambient monitoring, but won't be able to detect PCBs at the same sites using EPA 136 methods. Fish tissue collected for ambient monitoring is analyzed using extremely sensitive methods; that's one way we make an assessment of an impaired water body. The reality is that methods sensitive enough to detect PCBs aren't approved yet for use under 136, meaning we don't use them for assessment of compliance with limits. Right now we have very few PCB limits in the state.
Advisory Committee	Let's use PCBs as an example. You have the TMDL and allocation, but there's likely no method that will work. What do you do?	You can use the same method as was employed in San Francisco Bay, or the Delaware River. You can use sensitive analytical techniques to detect impairments, then try to figure out how to reduce PCB concentrations. Local source control efforts have reduced PCB concentrations in Spokane River; and reduced concentrations of DDT in the Yakima. We can't give a variance unless we think CWA standards will be met in the future. We have to assume that there is a reasonable assurance of meeting the standards; the solution might be a long term variance so entities have time to do the long-term source controls that would

		be needed for these situations.
Advisory Committee	The implementation of dissolved oxygen (DO) technology has to do with toxics as well. Sometimes loads are non-point sources. What do you do?	Non-point sources are hard.. We need to continue to work with businesses and communities to reduce concentrations as much as possible.
Advisory Committee	Interactions with SMS changes the structure/approach to cleanups – once we adopt the new FCR we'll be looking at cleanup levels below natural background. How can you get better than that?	When we [in the Water Quality program] talk about natural background, we don't include anthropogenic sources. There is no natural background for PCBs. The CWA background definition applies to naturally occurring chemicals, We have language in the standards that lets the natural background concentration trump the criteria concentration. We use that currently with regard to arsenic and the arsenic human health criteria. Oregon changed their risk level for arsenic and their arsenic criteria now is similar to their naturally occurring background concentrations.
Advisory Committee	So how can you get a variance if there is no strategy to get to the designated use?	The variance can't be given unless there is an expectation that the designated use will be met.
Advisory Committee	Adopting a 10^{-5} risk level is common, but moving to 10^{-4} risk is kind of earth shattering.	That's why I brought it up as an example in Oregon. They kept 10^{-6} as the risk level for all pollutants except for that one naturally occurring chemical. Ecology doesn't propose to change the risk level.. We must make sure the designated use is achieved. Actions should benefit sediment and water, to protect human health and benthic communities.
Advisory Committee	Even if the cancer risk levels can be modified from10-6 or 10-5, there's no way to modify the hazard quotient. That's the real issue I see for mercury. Non-cancer is where the game is.	You're right, we have more flexibility around cancer risk than non-cancer risk.
Cheryl Niemi: I'd like to make one more announcement – on December 13th we have our first Water Quality implementation tools workshop at the Lacey Community Center from 9:00-3:00.		
Questions and Comments on Dave Bradley's Presentation:		
Advisory	In my experience with Long Beach California, TMDLs were	

Committee	driven by sediment standards. The extreme other way that this can go is to look at water quality only. The main difference I see is that in Long Beach the regional water quality board was looking at water quality without sediment. I worry about how integration will take place in the future.	
Define unit cleanups – are there examples of where you think they do or don't work?		
Advisory Committee	The Duwamish is not working – we asked for permits to include source control and it's just not happening. We aren't getting a connection with Water Quality in the Duwamish.	
Advisory Committee	NPDES permit is not an incentive – it just opens the door to citizen lawsuits. If there are no NPDES permits afterwards, people will be more likely to want to clean up. I don't want to back away from source control, but the mechanism matters. NPDES is not a good mechanism. It should be in the Consent Decree.	The Consent Decree will be written to cover both the uplands and in water sediment.
Advisory Committee	I think we should put hard bounds on this – you're either incentivizing a party to do their cleanup or you're dis-incentivizing them, such that they would go hide in the weeds. When parties are making that decision, they should have options, like units, that are appealing – instead of an NPDES permit with expensive monitoring requirements and citizen suits if there is a detection, which may not even be his if his neighbors aren't clean. Why would parties step up under MTCA if it means increased scrutiny under CWA?	

	MTCA shouldn't tie to the CWA that way.	
Beth Schmoyer, City of Seattle	From a source control standpoint, we're struggling with the reliance on permits. Permits only regulate 10% of actions. Public diffuse sources go into storm drains, which are now considered a point source owned by public utilities. We don't have the means to enforce non-point source discharges, so we're stuck. Permits are such a small piece of the overall picture that they can't ever be effective.	We realize the issue of source control is much, much larger than facilities currently under an NPDES permit. When we talk about source control, we mean a variety of things: 1) Controlling PLP sources to prevent the PLP from recontaminating their cleaned up site – that could be done under the Cleanup Program's authority. 2) Controlling, by AKART or BMPs, other NPDES permitted sources to reduce loads to sediment and therefore reduce baywide sediment concentrations over time – that could be done under the Water Quality Program authority. 3) Other means such as LID, toxics prevention. 4) Nonpoint source stormwater – we realize this is the "elephant in the room" because it is from everyone's daily activities and we don't have a handle on how to comprehensively address load reduction. But, we realize that we need to talk about it and see if we can do better as an agency and as a state.
Advisory Committee	You do great work on the cleanup side of things, but I'm not convinced that you're the right people to do permits and monitoring. Whichever methods we use, Water Quality people need to be involved – there just needs to be an effective handoff. Nuance in the Water Quality Program is known to Water Quality people but not MTCA or SMS people; so we need to make sure we take advantage of and use that knowledge. Depending on which way you end up going, different legal issues will arise. You need to use the right people for the right tasks.	
Advisory Committee	I think Ecology is doing a great job. My concern with site criteria is related to boat yard operators, who come and go on land they	Permitting of site operations is important; we want to make sure we're not going backwards after completing an expensive

	lease from someone else, typically the Port. Once a site cleanup is done, future site operators that lease the site would have to comply with NPDES permits. That's a huge burden on them that the land owner is not responsible for. As we move forward, we should use NPDES permits as a tool in the long-term baywide cleanup, not necessarily impose them willy nilly on sites with legacy contamination – that's an unfair burden to lessees.	cleanup. You could also do your cleanup to achieve the long-term goal in the first place. If you don't get all the way there, then you do have to be responsible for source control. The way I see it, it becomes a risk management decision: you could do either, but what makes the most sense for you?
Advisory Committee Reaction to Ecology Response	That doesn't make sense to me; if you clean up below the regional background value – say, you put in a clean cap – it will just recontaminate as soon as it rains. *Reaction to Ecology Response:* You could – but you'd still have to monitor.	You could clean up a larger area to reduce the risk of recontamination.
Advisory Committee	Once you've cleaned up your uplands under MTCA, when you go to do SMS you should be just another guy.	
Advisory Committee	I think you should have to show that PCBs in uplands aren't an issue once, then when monitoring the cap you would look at regional background and determine why recontamination is occurring with respect to what's happening in the area.	This is just one scenario; there are lots of monitoring scenarios.
Advisory Committee	But if the issue is PCBs, they are probably not being introduced because of the boatyard operator.	We would still require monitoring under the Consent Decree that has additional requirements beyond NPDES requirements.
Are there any other thoughts anyone would like to share regarding the TMDL or source control?		
Advisory Committee	In each unit, you should set the goal as low as possible with respect to lower tier risk; or if	Currently sediment cleanup sites with an approved Cleanup Action Plan or Record of Decision go on the Category 4(b) list.

	that's not possible, the PLP should be on the hook. I think that's manageable with the 40 year timeframe.	EPA is asking us to work through that approach some more and it's a subject of discussion. I hadn't thought about it from a unit perspective like the SMS group is doing. The focus is on "we don't want recontamination of sites; maybe we should permit them." The CWA hasn't been looking at them at all because they're 4(b) sites. Now we need to ask the question, do we need to look at them as sources? TMDLs are likely needed. This is a larger discussion than just sediment or just Water Quality. The CWA is a difficult place to play – there are lots of restrictions. As a state, we try to work within them. Technology has limitations. There is a strategy and an order of approach, but it's very complex. The CWA criteria include fish consumption rates, etc. Maybe we just assign sites to the 4(b) list because we're implementing the best strategy we can. We need to determine what flexibility we have as a state acting within federal laws. A lot comes down to what has gone to court. The complexity makes it hard – and we sometimes give mixed messages because we don't know what the end game will look like. We want to use all of the tools we have available as quickly as possible, so we're looking to the low hanging fruit (not that there is much of that!) then focus on making slow, steady improvements.
Advisory Committee	Source control may not get us to regional background – especially for ubiquitous sources. The general noise level in PCBs is low but continues to bleed into the system. Source control can knock off the big stuff but we will be dealing with the lingering effects of legacy contamination for many years.	
Advisory Committee	In my experience the trouble is often getting onto sites in the first place to see if buildings are a	Ecology response to dialogue: 40 years was chosen somewhat arbitrarily

	source or not – that doesn't mean that the buildings on those sites aren't sources. The knowledge that buildings are a source is relatively recent. The question is: how do you get onto these properties to these potential sources to sample? *Advisory Committee Member Reaction:* If you have hundreds of buildings with PCBs in their window caulk, what do you do? *Original Speaker Response:* Work with the state to create incentive programs to remove windows with caulk in the windows. There are lots of potential solutions.	for the allowance of NPDES variance, but I think we have a good chance of EPA approval. When we talk about source control in the Water Quality Program, we also mean product bans, land use approaches, and other ways to keep pollutants from entering streams. We aren't only talking about upstream sources. For cleanup, source control is a broader thing than that – phthalates are the best example in the sediment world for that dilemma. There's no overnight solution or even always a totally feasible solution. All of this sounds great but feasibility remains a question. Urban water initiatives, ordinances, and air deposition studies are all identified as source control. How real the "glide path" is depends on the shape source control takes.
Advisory Committee	For the record, I would like to state that the Lower Duwamish group disagreed with that report on phthalates – we don't think that we're decades away from a solution.	
Beth __, Invited Guest	The difficulties with source control tools are that permitted sites can sometimes be barriers because the focus becomes all about treating stormwater. Fugitive dust etc is not at all a part of the focus, and it can be hard to get through – but if we can remove barriers between Water Quality and cleanup folks, perhaps we can get through that.	
Audience	Do we have the ability to trace things across state lines? For example, from Idaho to Washington?	Yes.
Audience	I'm thinking of the Pend Oreille River, which flows into Idaho	There are multiple scenarios – sometimes Ecology will contract it, sometimes

	then circles back to Washington. Who pays for the bioassay if metals numeric criteria are not triggered? The tribes?	Ecology will order the PLP to do it, and sometimes the tribes will take it on themselves.
Audience	With revisions to place sediment sites on the 303(d) impaired water body list, what would the program look at to determine 303(d) status?	Our current policy is to 303(d) list sediment based on the SMS numeric chemical and biological criteria (which are based on benthic community protection).With the rule revisions that include more specifics for establishing cleanup standards based on human health protection, we haven't settled on how that will factor into 303(d) listings. The process we currently use involves an automated analytical tool that relies on numeric criteria. Since the rule revisions for human health do not include adoption of numeric standards, we aren't sure yet how that can be incorporated into 303(d) sediment listings. We will continue with the process we have now for the near future.
Audience	Since the fish consumption rate will inform the Water Quality process, I want to follow the developments closely.	
Questions and Comments on Dave Bradley's Presentation on Next Steps		
Audience	In human health risk assessment guidance, the exposure assumptions from direct contact can also be an issue. Are you specifying appropriate assumptions?	The guidance will address multiple exposure pathways including dermal contact and consumption.
Advisory Committee	Will guidance come out at the same time as the rule? I would think that guidance should come out after the rule – otherwise we might be overwhelmed with all the new information.	The effective date of the rule could be staggered approximately 6 months from when guidance is published. We have received advice to put evolving information into guidance, but we will develop them concurrently so that implementation of the rule will be clearer. We expect to look to Oregon for certain elements regarding bioaccumulatives and ecological risk when writing our proposal.
Advisory Committee	How will regulatory analysis affect the cumulative effects of all three processes going on at	We tried to look at it broadly from the perspective that this is a phased project that won't take place piecemeal. We don't want to predefine the Water Quality

	the same time?	process since it is its own public process, but we need to conceptualize its role.
Advisory Committee	I understand that the fish consumption rate will come out of the FCR document – but will methods of applying the FCR be taken out of the FCR document as well, or will they be taken from somewhere else? Will we have to wait until March?	The draft rule includes language about how the FCR will be used in development of cleanup standards. It is in section -571.
Advisory Committee	The issue I have is that I don't know how the FCR fits into the SMS rule.	We have a placeholder (an "X" instead of a numeric value) in the draft rule, but we do have language in the rule to address our expectations. Please read it and provide additional comments as you see fit.
Advisory Committee	I'd like to give more flexibility to the PLP, but there needs to be a balance (under MTCA probably) that the public process will increase. Comment letters on Consent Decrees have little weight; they need to serve as a balance in the process. It's getting harder and harder for the public to stay informed and be involved.	
Advisory Committee	When talking about the intersection of freshwater and marine standards, within the broader SMS standards there needs to be a statement about how freshwater standards contribute to the goals in Puget Sound so that people understand their relationship. Even the mouths of rivers feed into Puget Sound.	To summarize, you're saying it needs to be clearer how we connect the dots between freshwater and marine standards, given that upriver freshwater are higher for zinc and copper than the downriver marine sites.
Audience	How are you going to factor in the results of the soil/dioxin study with respect to regional background?	The study had interesting results for soil in residential areas – and will have interesting implications with respect to connections to storm drains. I'd be interested in working with the data more before deciding how and if it should be incorporated.
Audience	What risk levels can be used? A 10^{-4} risk is acceptable in Oregon;	The allowable risk ranges are contained in Section 571. The lower tier risk level is 10^{-}

	I gather the state mandate of 10^{-5} or 10^{-6} is a difference scenario than allowing high consumers to have a 10^{-4} risk level?	^{6} cancer risk for individual carcinogens or a hazard quotient of one; upper tier risk is 10^{-5} for the total site and a HQ of one.
Tamie: What are your overall thoughts and feedback on the SMS rule revision process?		
Advisory Committee	Merry Christmas.	
Advisory Committee	Standards are evolving, but not fast enough.	
Advisory Committee	I think there's a sweet spot…good luck.	
Advisory Committee	My fundamental concern is integration with Water Quality and the affect on businesses.	
Advisory Committee	Ecology is doing a great job.	
Advisory Committee	Don't make me worse off. Make sure there's a level playing field.	
Advisory Committee	Great job so far. Good luck.	
Advisory Committee	When I first heard phosphorus numbers, I was shocked at how low they were. When I heard the new PCB numbers, I was shocked again. Technology could catch up to the phosphorus numbers, but I'm not sure it will for PCBs. (comments relates to water quality standards, not sediment standards.)	
Advisory Committee	Water quality implementation could be a slippery slope (x3).	
Advisory Committee	Thanks – this is a good process.	
Advisory Committee	I hope there are multiple Water Quality implementation meetings, and not just in Lacey. I'm in Bellingham, and I know many others in Bellingham who would also like to participate. Be protective of fish and people.	
Advisory Committee	Water quality…you have my sympathies.	
Advisory Committee	Avoid dis-incentives; let cleanups happen, please; and thank you.	
Advisory Committee	Implementation of baywide cleanups.	
Advisory Committee	Source control is difficult, not impossible.	
Advisory Committee	I like the concept – but am worried about implementation.	
Advisory Committee	Keep your eye on the prize. Avoid dis-incentives.	